Unusual Opportunities for Research in Eastern Lands*

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In Oriental countries we find not only the diseases known to the West, but also many that are peculiar to the East. Many of these latter are yet confined to the East, but the increasing communication between these two sections of the world has already resulted in the transference of some of them to the West, and this undesirable result of the increasing contact of West and East is certain to add largely to the number of diseases already in the West. The need, therefore, for Western physicians to study Eastern diseases constitutes not only an interesting scientific problem and a means of giving help to our brethren in the East, but is actually a problem of our own protection. My talk this evening must confine itself to but a few of those diseases which are prevalent in Korea and which, because Korea is in the same range of latitude as the United States and Canada, are most likely to be transferred to these countries.

Endemic Hemoptysis.

Soon after I reached Korea in the summer of 1893 I was confronted with many cases of a disease quite new to me. The patients were mostly anemic, emaciated, weak and troubled with severe cough. Expectoration was abundant, the sputum being brown, purulent, thick and foul-smelling. Hemoptysis, sometimes slight, but ofttimes so severe as to threaten life, was more or less frequent, and though periods of rest from these attacks sometimes allowed the patients' condition to improve a good deal there were no cures. Microscopic examination of the sputum revealed blood, pus and peculiar ovum-like bodies, but usually no T.B.

In consultation with an English physician who had had some experience in Korea I learned that the disease was endemic hemoptysis, that its cause was a lung fluke, known as *distomun ringeri* (later as *paragonimus westermanni*) that made its home in the lungs of human beings and by its burrowings caused the erosion of the blood vessels which produced the hemoptysis.

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The fluke itself was never found in the sputum, but its ova were abundant therein and, while the microscopic appearance of the sputum itself was pathognomonic, the diagnosis could always be verified by finding the ova in the sputum, requiring only the use of a low-powered microscope without any special preparation of the sputum. He said further there was no known remedy for the condition. On making enquiry from the Koreans they said the disease was very common but confined to certain localities, and in the minds of the people was the result of drinking the water in those contaminated places. They knew of no way of curing the disease.

Here then were several problems offered by one disease. What was the fluke's outside host? What was the medium of transmission to the patient? Why was it confined to certain localities? What was its remedy? How could it be prevented? I looked up all my available text-books but only one, Osler, referred to it at all, and he only in one short paragraph, mentioning a few of its symptoms and saying there was no known treatment for it.

I had then neither the skill nor the equipment for conducting a fruitful search for the fluke's outside habitat or its mode of transfer to the human being, but I had some knowledge of materia medica and pharmacology so set myself to solving the problem of its treatment in the patient. I reasoned (1) that the fluke should be attacked by antiseptic remedies known to be excreted through the lungs, (2) that the patients, having so much destruction of lung tissue should live in the open air as much as possible, (3) that they should have abundant nourishment and tonic treatment. Under the first heading I selected balsamic drugs, and under the third prescribed the ordinary tonics: strychnine, arsenic and iron. From amongst the balsams I chose Ol. terebinth, as it was readily and constantly available and cheap. I gave it in ten min. doses on sugar or in syrup three times a day. I was gratified to find an almost immediate response in my patients, marked by a cessation of hemoptysis, a diminution of the sputum with disappearance from it of blood, pus and odor, alleviation of the cough and a rapid improvement in the general condition. An early disuse of the turpentine led to a recurrence of the symptoms, but a resumption of it again gave relief and now I find many of my patients of twenty-five years ago still alive and in apparently normal health. I found terebene equally effective. About 1912 we secured a pathologist, Dr. Ralph G. Mills, who began a systematic study of the localities where the disease was endemic in an effort to discover the fluke's host. In this endeavor he collected small fish, snails, crabs, etc., and brought them to his laboratory where he set up suitable conditions for sustaining life and trying them out with the sputa added to

their regular diet. In this he was making considerable progress when announcement was made that a group of Japanese pathologists had been engaged in Korea in the same pursuit and that they had found the chief host to be a fresh-water crab which inhabited the streams of certain restricted localities, which crabs were often eaten uncooked by the people. We regretted that Dr. Mills had been beaten to it but were glad this part of the problem had been solved and that the people could hereafter avoid the disease by the simple process of cooking the crabs.

The fluke however, does not confine itself to the lungs, but is sometimes found in the liver or the brain. In the latter locality it causes headache, irritability and insanity. A remedy is therefore needed which will kill the fluke wherever it may be and also promote its absorption. Salvarsan has been tried, but so far without much satisfaction. Therapeutists and pharmacologists here have an opportunity and, in solving this problem, they will probably solve those of a similar nature relative to other flukes.

Sprue.

One of the most baffling of present day Oriental diseases is *sprue,* otherwise called *psilosis,* and volumes are being written about it. My first acquaintance with it was when I began, some three years after I arrived in Korea, to suffer from a group of symptoms which I, at that time, considered to be those of a very obstinate chronic diarrhea, but which was accompanied by a sore tongue and great bodily depression which led to my return to Canada two or three years later to recuperate. Since then a considerable number of Westerners living in Korea as well as in other Eastern lands have suffered in a similar way and many have died. Few other diseases offer, at the present time, so many unexplained features as does this.

1. Its etiology is still obscure, although it is being perseveringly studied in many countries. Because the stools are greatly fermented and gaseous several workers have searched for a yeast as the cause and a few years ago one of these yeasts, a monilia, which has been designated *monilia psilosis,* was hailed as the primary cause of the disease, though the majority of observers are still dubious about it. Certainly a great variety of yeasts are to be found not only in sprue stools, but in normal stools under certain conditions, but their causal relations are not yet understood.

Again, the presence in the stools of much undigested fat points to an involvement of the pancreas and other symptoms point to a deficiency in nearly all the digestive juices, but what lies back of these deficiencies? What causes the lack of functioning in those organs?

Vitamine-deficiency or deficiency in some food material would account for much that we see in the progress of a sprue

case, but it develops in those who are eating foods exactly similar to what others are getting who do not develop the disease.

A study of many cases has led me to conclude that sprue may be not an identical disease, but a complex of symptoms dependent upon insufficient or perverted digestive juices, that this insufficiency or perversion may be the end result of other debilitating diseases or even of mental worry, especially fear of the disease itself, a mental state brought about in some places where it is prevalent and its symptoms have become matter for general and almost constant conversation. But again there are cases that seem to develop quite independently of the conditions just referred to and which point to a direct etiological factor. In any case there are, in the etiology of this one disease, factors for research which will call for much time and persistent effort in solving.

2. Then its treatment is in just as much confusion, though a few things stand out prominently as of general value. Many remedies and many methods have been found useful in but a few cases and many others have been recommended, tried and discarded.

In my own case all the tongue and mouth symptoms disappeared during a sea voyage, leaving only a chronic diarrhea which finally disappeared two or three months after landing in Canada after a few days' use of Eno's Salts without any change of diet. Others get better on a milk diet, others by large use of fresh strawberries, and some by a change in mental attitude. A wide field for research in the treatment of sprue is therefore open.

3. Again, there is the probability of there being various sprues. How can a given case of sprue be differentially diagnosed so that one can determine a rational treatment for it? All this is at present a matter of guess work. Even the question of whether a given case of chronic diarrhea should be called sprue or not is often a matter of dispute in a group of doctors on the field.

Dysentery

In my early days this was of easy diagnosis. Blood and mucus in the stool and rectal tenesmus—dysentery. But treatment was very uncertain and nothing was said about differentiation. Now we are told that dysentery may have to be declared in the absence of blood or of mucus, or of tenesmus. We must examine the stools for certain bacilli or amebae. In Korea we have but a little bacillary dysentery, though much amebic.

Amebic dysentery is said to be caused only by the *entameba histolytica,* although many other varieties of amebae may be

found in the stools, but in Korea we have many cases of dysentery in which *entameba histolytica* is not found but in which another called *councilmania lafleuri,* presumed to be non-pathogenic, is abundant. What causes *this* dysentery?

Then there is the question of treatment. Emetine is the present remedy for amebic dysentery, but we are now being told that emetine is very particular about the kind of ameba it will attack. It is partial to *entameba histolytica* but will have nothing to do with *councilmania lafleuri.* Yet we have used it in many cases showing the latter and not the former with quick relief from the symptoms. What is the secret of the action of emetine? Some claim that in such cases the emetine cures the dysenteric symptoms whether or not these were caused by *councilmania,* but leaves this ameba untouched. If so, how does it do it?

In my early days I read a suggestion by Ringer (I suppose Ringer is not thought of now as a therapeutist) that the administration of 1/100 gr. of bichloride of mercury every hour in a case of dysentery would in a few hours remove all blood from the stools and that then the mercury might be stopped, the after-treatment being that of an ordinary diarrhea.

The value of this I have many times proved and have recommended it often in cases of dysentery not improved by emetine, though diagnosed as amebic, with prompt improvement.

Evidently dysentery is still a subject for careful research both as to etiology and treatment. Then there is hepatic abscess, supposedly an amebiasis. Our surgeon, Dr. A. I. Ludlow, two years or so ago, was elected a fellow of the American College of Surgeons after reading the histories of a series of 100 operations for hepatic abscess performed by him. In the year and a half following his return to Korea he saw thirty more cases which he treated as successfully without major operation, using emetine and aspiration. Much has yet to be discovered about amebiasis and its treatment.

Relapsing Fever

In my early days in Korea I was greatly baffled by a disease characterized by high fever of sudden onset and racking pains, continuing and increasing in severity for several days and then a climax of most intense discomfort followed by drenching sweats which left the patient free from fever and completely relieved of all symptoms except extreme weakness. After a few days the fever relapsed with the same series of events and these relapses were likely to be repeated several times, destroying the red blood corpuscles with resultant jaundice, reducing the vitality of the patient and frequently ending in death. Early diagnosis was next to impossible and even when relapses made this clear we had no dependable method of treatment.

The value of research has never been more evident than in this disease for the discovery of a spirillum as its cause, discoverable by a low power microscope in a drop of blood, made its diagnosis possible within a few minutes and removed all doubt of the nature of the disease at an early stage.

It required, however, twenty-four years of further study to learn that this spirillum could be destroyed by salvarsan but now ten minutes for blood examination and six hours for the action of one dose of .45 grms. of the drug given by the intravenous method will serve for the diagnosis and treatment of a case. Relapses are very infrequent after this treatment. It has almost the appearance of a miracle.

The question of getting rid of the vermin which transfers the spirilla from the sick to the well calls for much time for education of the people and so there remains the question of how to render people immune in the meantime. Experiments in serum treatment have given some promise but this field is still an open one.

Typhus Fever

Typhus fever causes great havoc wherever poverty, war, or ignorance leads to the increase of the vermin which transmit it. It has been and is a common disease in Korea. I experienced an attack of it in 1900 in that country. It was much studied during the late war, but even yet how little is known! We have no laboratory method of making an early diagnosis and its symptoms and physical signs do not reveal their cause clearly until after many days. There is also as yet no known specific treatment and no other treatment that can be depended on. There is also nothing yet known about the production of immunity from this, one of the most painful and destructive of all the diseases that come from the conditions mentioned above.

Leprosy

This disease has been much studied of late. A good deal is now known about its etiology and a little about its treatment, but here is a great opportunity to find out the circumstances and modes of its transmission from the sick to the well, how to make an early diagnosis, which is very important in view of the fact that the longer it goes unrecognized and untreated the more difficult is its cure. Then the present remedies, chaulmugra oil and its derivatives, are scarcely to be considered as specific or really dependable though they have given great encouragement to all who are dealing with leprosy. There are supposedly 20,000 lepers in Korea, with more in the larger and warmer countries. In the old days I gave the chaulmugra oil by the stomach and the patients took it a few times and quit, saying they would rather keep the leprosy than take the medicine. It was very nauseating. Now

I think why didn't I have the sense to devise the intravenous method and gain all the glory besides doing all the good? Truly young doctors need to be clear thinkers.

You will find by reading any reliable text-book on tropical diseases that I have referred to but a few of the many perplexing problems of sickness in tropical countries and the fact that many of the so-called tropical diseases occur also in a land like Korea, which as I said above, is located in the same latitudes as Canada and the United States, makes it evident that the diseases now regarded as tropical may, like human beings, adapt themselves to colder climes, makes it even a selfish necessity that these problems be faced and solved.

Even in malaria there are many unknown factors relating to mosquitoes, to the cachectic conditions following severe and prolonged attacks, and how to treat them, to the best methods of using quinine as a preventive and as a curative, and to the finding of other remedies than quinine.

Beriberi, which is regarded as a dietetic disease, may yet be shown to have an infecting organism in addition to the factor of food-deficiency. If not why do only a few of those using the same food succumb to the disease?

The etiology of *pellagra* is yet uncertain and an infecting organism should be sought for. The treatment of the disease too, is most unsatisfactory.

Asiatic cholera would destroy whole communities in one season were there not some unknown factor contributing to the immunity of the majority of persons. What is it? How can we get control of it?

Many varieties of intestinal parasites are found, some of which are recognized as pathogenic while some are considered as harmless. The real facts as to their harmlessness or otherwise are not known. It is to be noted that the number assigned to the pathogenic class is growing larger with the increase of knowledge of them. Then for those whose interest lies in the sphere of pharmacology our Eastern countries offer abundant material for study. Native drugs are numerous and many of them unknown to us and untried by us though the people who use them think much of them and sometimes, after we have failed to cure a case, it is treated by a native doctor with native drugs and cured, much to our chagrin.

Are there any pharmaceutical chemists or pharmacologists among you looking for a chance to get renown and at the same time bless mankind? Only a very busy life, taken up with other pressing problems, has prevented me from studying more carefully the materia medica of Korea.

Then there are food problems in the Far East. How much of the sickness is due to the unsuitable foods and unbalanced foods? Our own observations and experience indicate that

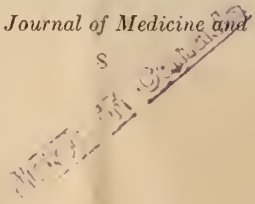
much of the tuberculosis which is the greatest scourge of Korea is due to lack of resistance resulting from insufficient food in some cases, but from an unbalanced diet in the greater number of cases. This subject calls for careful study.

The infantile death rate in Korea is forty-four per cent. and upwards of those under two years of age. What is the reason for this? We need to know the "why" and "how" of a great many things.

Why are *nervous diseases* prevalent in a country where Western civilization with its stress has not yet more than entered? Why are hysteria, mental vagaries and even insanity common? Even the neurologist can find scope for his investigations.

When I went to Korea in 1893 I found a population of only 12,000,000 and that number diminishing. I found superstition, ignorance, dirt, vermin, disease and death superabundant. Smallpox was more common than even measles has ever been here.

Asiatic cholera was epidemic every few years. Malaria was almost universal. All told, only a few Western doctors and nurses have served in that country but by hygienic education of the people through pamphlets, by the spread of a considerable degree of general education, by the education of native doctors and nurses and by the enlightening and stimulating influence of the knowledge of God in place of their fear of evil spirits and the retrogressive and stagnating effects of Confucianism and Buddhism the tide has turned and the population is now estimated at 17,000,000.

Malaria has been greatly reduced by their knowledge of mosquitoes. Smallpox has been almost wiped out by vaccination. Typhus and relapsing fevers have been reduced by the reduction of vermin—body-lice and bed bugs—through the influence of education and the infusion of Godliness and cleanliness. The few Western doctors have done what they could in meeting the pressing problems of disease and trying to mitigate the suffering and save lives, leaving but little time for the investigations needed to solve the problems referred to higher up. Those there now, too, feel that the education of physicians and nurses on a still higher plane, so that they may become the teachers of the 17,000 doctors and 50,000 nurses needed for the present population, is their next great duty and opportunity. And still the great research opportunities present themselves and call for the devotion of younger men filled with a desire to advance their own knowledge, to confer benefits upon their fellowmen, to help a land still in the beginning of its renaissance and to help solve the problem of prevention and reduction of sickness and suffering in the world at large.

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